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GREAT EXPECTATIONS

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I BELIEVE

Jawaharlal Nehru

Nature red in tooth and claw cannot be allowed to govern the actions of the "higher animal-man" in the world of today. Free enterprise and *laissez faire* has been controlled even in capitalist countries to prevent men with sharper claws and fiercer teeth from preying on the weaker men, whose claws and teeth are feeble.

Strong and powerful men in the world, where the capitalist economy reigned supreme, have had their claws trimmed and teeth blunted to a considerable extent through governmental action. It is for this reason that we are undertaking planning to give equal opportunity to all, the weak and the strong, those with sharp claws and fierce teeth and others who have smaller claws and feeble teeth. In India, unfettered free enterprise could never be allowed to have full sway. It means that men with sharper claws would not be permitted to pounce upon the weak, plunder them and commit loot to build their own economic empires.

JUNGLE HABITS

This does not mean that private enterprise and initiative have to be curbed completely, 100 per cent. It would be allowed to function within certain limits so that initiative was not smothered. We cannot completely prevent people with sharper brains from using their intelligence and economic power for asserting themselves. After all, power is power, whether of the brain or of the muscle. Some have more of it than others. But you can give strength to the weak by creating equal opportunities for the weak. So, if you leave everything to the precept of nature, then the more powerful and more cunning human beings will go forward, ride on the backs of the weak, and exploit them for self-aggrandisement. This policy will make the strong stronger, the rich richer and the poor poorer. So even in big capitalist countries, Governments have taken certain measures to control the powerful by trimming their claws and blunting their teeth.

The jungle habits of animals cannot be allowed to govern human conduct. We have to get rid of this habit more and more as it only fosters selfishness and craving for personal gain and acquisitiveness. We have to prevent this from happening.

THE "HOROSCOPE"

Planning is the "horoscope" of the 40 crore people of India. But this horoscope is not cast with the help of the moon and the stars but through careful husbanding of the country's resources and creating more and more opportunities for the people to go ahead.

All people cannot be made equal. But they must be given equal opportunities. In India, hundreds of thousands of people, especially in the villages do not have opportunities to have education. We have to find new cures for these old ills. The remedies of old are of no avail today. We have to understand the present day situation in the world and India. The old remedies have no relation to present day conditions.

NEW OFFSPRING

Socialism is the offspring of the Industrial Revolution. When new wealth is produced, the problem of its distribution arises. The common people before the Industrial Revolution patiently accepted their fate and their poverty and suffering. But it is no longer so after the Industrial Revolution.

We are passing through revolutionary times. In four or five years, the Soviet Union might send human beings to the moon. The world is changing and is on the threshold of atomic revolution. We have to look at every problem in the context of the modern world. Socialism does not mean distribution of poverty. Socialism aims at producing more and at the same time ensuring that the new wealth produced does not remain in a few pockets alone.

"TAKE OFF"

Our country is still poor. We have to take off, as they say, and jump over the morass of poverty.

The most vital thing in this "take off" is building up heavy industries. The real factor behind the success of capitalism in America and communism in Russia is the big machine and the knowledge to run it.

In India only the big machine can help the people go forward. The people have to be trained also. There are one lakh engineers in India today. Their number has to be increased to three lakhs in the coming years. The engineer today has become more important than people like lawyers who have dominated the scene during the past.

Along with this, the agricultural sector has also to be improved. In a way, this is more important than even industrialization because a prosperous agricultural economy would enable more rapid industrialization.

India needs today four things—steel, power, heavy machine-making industry and trained personnel. We have to make a tremendous effort to enter the industrial age. This is a revolutionary thing. Society must change with the times. If we do not endeavour to bring this about, society will burst forth through its old apparel and come into its own. This is called revolution.

India is passing through a historical phase. It is the good fortune of all of us that we are living in these times and changing the face of India. Historians will write about this big story of India in the making. It is all the more imperative, therefore, that we do not allow petty squabbles to bog us down and sap our energies.

A proper atmosphere should be created to make the 40 crores of people feel that they are marching ahead together, shoulder to shoulder, in building their future. Petty conflicts and carping criticism are of no avail. We should discuss everything in the open, as Gandhiji had said, we should not keep the sword in our hearts. It is far better to take the sword in the hand and have it out in the open, even though wielding of the sword is bad enough.

(Based on a speech delivered at Chandigarh).

WORKING WITH PEOPLE

Takht Singh Sohal

The subject of working with people to bring about desirable changes is in a nascent stage and calls for answers to some fundamental questions. Is it an art or science? Can it be acquired and learnt? Due to paucity of literature directly related to this subject, it is hard to answer these questions in absolute words. But if it is understood that while working with people, an extension agent is communicating useful ideas to them, an ever-increasing evidence is forthcoming to show that the skill of communication can be improved. It can, therefore, be surmised that this is an art which lends itself to acquisition with efforts. In this age when it is claimed that qualities as nebulous as that of leadership development can be acquired, it should not be surprising to remark that the art of working with people can also be learnt.

The Social scientists and Social workers have been instrumental in amassing sufficient evidence on this topic. But it can be said that this has so far resulted in signifying the urgency of knowing more about the subject of dealing with people rather than perfecting universal techniques.

This has, at least, removed the complacency that surrounded the issue. Now more and more workers are coming to recognise a need for knowing more about it. Some of the really sensible workers are becoming conscious of this deficiency. This is, indeed, a healthy sign. Skill in working with people successfully presupposes a thorough knowledge of the subject matter and ability to communicate the same effictively. An extension worker has to be well up in all of these three; deficiency in any one will be reflected in poor results. It is hard to put these items (working with people, knowledge of subject matter and skill in communication) in order of merit. But one point stands as cardinal. With increased specialisation of technical subjects and expansion of body of literature, the chances of having complete mastery over any subject are becoming rather remote. Naturally, more reliance has to be placed on outside assistance of the resource persons in the form of specialists. Hence there will be less to lose in not being perfect in the technical subject personally, but there will be no substitute for weaknesses in communication skills and ability to work with people.

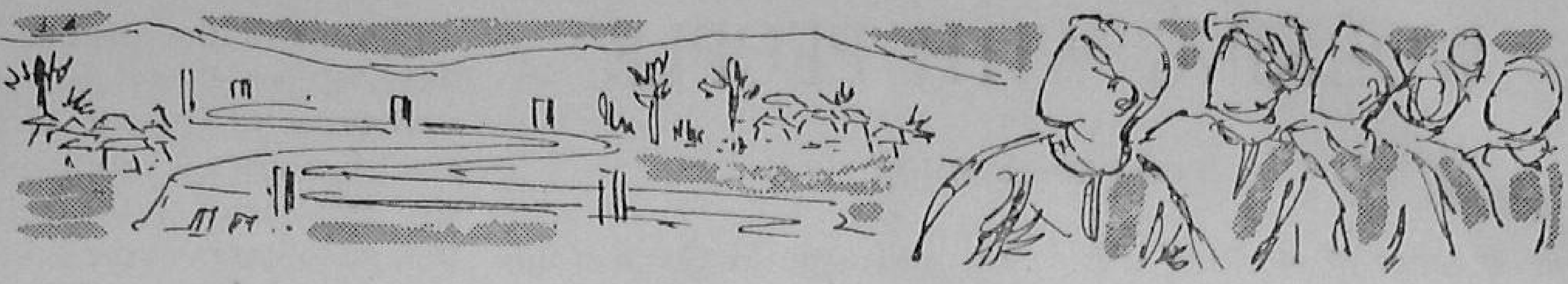
The major purpose of this article is to create a sense of awareness among the readers (Extension Workers) that there is a lot to learn about working with the people. The workers will feel a thrill of successful experiences if they consciously keep it in their mind.

In view of the vastness of this subject, it will be presumptuous to attempt, in the available space, a comprehensive treatment of the points that go to improve the skill of working with people. The following are, therefore, only some of the more important factors that seem pertinent.

1. An extension worker ought to be a good listener. He should have patience and ability to listen to the people he is working with. It is regrettable that the trend at present is to start by telling stereotyped improvements just like a tape-recorder. There is usually, on the contrary, more of receptivity and feeling of genuine interest when a beginning is made by allowing others to speak. It is, therefore, desirable to stimulate others to express themselves by asking questions.

2. In dealing with people, an extension worker must be guided by the interest and needs of the persons. Equally important is the knowledge of their existing level of understanding and socio-economic status. Once the approach is turned to these factors, the recepient is likely to be more inclined to accept ideas with a comparatively high speed.

3. It has to be remembered that extension worker is engaged in a voluntary type of education and hence his task is different and more difficult than a teacher in a formal Class-room. To be successful in securing the willing response of the people voluntarily, it is necessary to maintain a strictly informal atmos-



phere. The participants should suffer from no inhibitions of acting or acquiting themselves in a strictly formal manner. Furthermore, the worker should be conversant with the process and techniques of adult education.

4. In a sense, the extension worker's job lies in creation of those situations in which the participants obtain helpful *learning experiences.* Unless some one has learnt something, no effective teaching can be considered to have taken place. For providing suitable learning situations, the extension worker must take care of physical environment, create informal atmosphere, watch the interest and reactions of the participants, and combine education, as far as possible, with recreation.

5. Success in working with people also requires an ability to anticipate the probable reaction and effectiveness of the teaching activity. A proficiency in this will enable the worker to know beforehand the internal situation, probable source of resistance or opposition and latest deficiencies if any.

6. Before offering a new idea, innovation or improvement, development of a sound rapport is very essential. Unless a feeling of mutual understanding is made sure, the learner will not be found very receptive. How often the efforts of extension worker go amiss owing to a lack of proper rapport, is seldom realised.

7. As extension education is voluntary in nature; it is necessary for the worker to show convincingly a genuine interest in the affairs of the people.

8. It is advisable to make objective presentations only. Incomplete, premature or fictitious information can do incalculable harm to the whole agency. There should be no false promises or mirage.

9. Respect for the local customs is essential. Superstitions must be pointed out tactfully and not through ridicule.

10. Develop intimacy but be careful not to align with one group where people are already split into factions. Similarly, accept only a minimum of hospitality and never get obligated to return it in the form of personal favours.

It has been emphasised that the development of the people is the ultimate objective of improving the villages of India. In doing so, regardless of the methods employed and the programmes pursued, an extension worker is working with the people. The pivotal significance of this statement is sometime not sufficiently recognised.

Consequently some of the programmes tend to become exquisitely physical in nature and their impact on the people remains inconspicuous. Out of the three requisites necessary for an extension worker *viz.* (i) Knowledge of subject matter, (ii) Ability to communicate it to people, (iii) Ability to work with people. none is less in importance than the other. Recent advances in Social sciences have prominently revealed the need for knowing more about the art of working with people. The extension workers are, therefore, well advised to remain consciously aware of the fact, that they are working with people and must improve their skill.

WAREHOUSING—AN ANSWER TO WASTE

To ARREST wastage of agricultural produce and bring about a general improvement in the rural economy, warehuosing has been adopted as a national programme in the public sector. The scheme rests on a tripod of three advantages, namely, scientific storage, easier credit facilities and better prices. The fact that about three million tons of foodgrains alone go waste in the country due to lack of efficient storage facilities shows how acute is the need for warehousing of all agricultural commodities produced in the country.

In pursuance of the programme which took concrete shape with the establishment of the Central Warehousing Corporation in 1956, 18 Central warehouses with a total storage capacity of about seven lakh maunds have so far been opened. Although most of the State Warehousing Corporations were formed only last year, they have succeeded in opening 65 warehouses till the end of September this year. It is expected that the Central and State Warehousing Corporations will start 10 and 120 more warehouses, respectively, during the remaining months of the current financial year.

The Beginning

In countries like the United States of America and Canada, warehousing has an important place in the national economy. Besides elimination of wastage, the convenience and security which warehousing lends to trading in general are well recognised and the warehouseman is considered as specialised a worker as any other in the entire economic and marketing field. In India, the need for warehousing drew the attention of the Rural Credit Survey Committee which was set up by the Reserve Bank of India in 1951 to explore the possibility of enlarging credit facilities to agriculturists. The Committee recommended promotion of warehousing activity on a country-wide scale. As a result, the Agricultural Produce (Development and Warehousing) Corporations Act was passed by Parliament in 1956 providing for the establishment of the National Co-operative Development and Warehousing Board, Central Warehousing Corporation and a State Warehousing Corporation in each State.

Scientific Storage

Since proper storage of various commodities is of utmost importance for the success of the scheme, every effort is made to deliver the goods stored in the warehouses to the depositors almost in the same condition in which they are received. Elaborate measures are taken to control pests through fumigation, disinfestation, dusting and ratproofing. Particular care is taken to see that no foodgrain or commodity is affected in any way as a result of the use of chemicals for disinfestation. As a protection against the vagaries of climate, special structures are built in the warehouses.

Special Storage

Plans have now been made for breaking new ground in providing warehousing facilities. About 50 commodities are now stored in the warehouses including foodgrains, oilseeds, cattle fodder, raw cotton, cotton seed, raw jute, turmeric, gur, ginger and pepper. It is now proposed to provide for storage of other commodities also. In fact, schemes are ready for an air-conditioned warehouse in the Hooghly District of West Bengal for storing lac, a cold storage for potatoes and apples at Theog in Himachal Pradesh and a warehouse for coffee at Mangalore. Special arrangements have already been made for storage of jaggery at the Central warehouse at Kohlapur, turmeric at Sangli and pepper, ginger and kopra at Kozhikode.

Credit Facilities—Better Prices

Since the warehouses in this country are designed to improve the agrarian economy of the country, efforts are being made to develop the centres with a rural bias. The warehouse receipt is acceptable to bankers on the strength of which a depositor can obtain loans at comparatively low rates of interest without transferring physical

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MINOR IRRIGATION PROGRAMME

SMALL IRRIGATION works that can be conceived and handed to a large extent by the local people themselves, and individually cost Rs. 10 lakhs or less are termed as "minor irrigation works". Minor irrigation, thus, includes works like open wells, pumping sets, Persian wheels, tubewells, filter points, tanks, small dams, bundhies, rapats, embankments, anicuts and channels.

Minor irrigation works are very important from the immediate food production point of view. As compared to large-size works (known as major and medium irrigation works) they can be executed in relatively shorter period and with more or less local resources of men, materials and equipment. They also yield quicker results; development of irrigation on completion of projects is almost immediate.

Works like wells, pumping sets, persian wheels, etc., are executed entirely by individual cultivators. Many works like tanks, anicuts, and channels, etc., benefiting groups of cultivators are also executed by the cultivators themselves on cooperative basis. Financial assistance from Government, mostly in the form of loan, is given for both categories of these works. Subsidy, subject to a maximum of 25% of the total cost, is also given, wherever considered desirable, to encourage construction particularly in backward and unproven areas.

Minor irrigation schemes which requires some specialised technical knowledge in surveys and execution are handled by the concerned Departments of the States. Public participation is obtained for these works in the form of cash, labour or kind. State Governments levy irrigation rates or cess on the areas benefited.

Minor irrigation has ample potentialities for further development in all the States. The programme will, thus, continue to be the most important programme under the Agriculture Sector. An increased target of 14.78 million acres of additional irrigation to be benefited by minor irrigation works alone is being planned for the Third Five Year Plan.

Appropriate arrangements are also being made in all the States for proper maintenance of completed minor irrigation works. Village Panchayats are increasingly associated with maintenance of works that benefit a group of cultivators.

Alongside implementation of an expanded programme of minor irrigation, attempts are being made to introduce improved methods of irrigation. Use of "Sprinkler" irrigation, which has been found very successful in many western countries is being experimented upon at number of Government farms as well as privately owned farms, with a view to assessing the utility of this equipment under Indian conditions and popularising its use wherever its application is found particularly advantageous. Efforts are also being made to evolve cheap designs of small indigenous equipments like siphon tubes, convass dams and other farm structures that may help the cultivators in distribution of water supplies and in the application of water in the fields.

THE ATOM ON THE FARM

OF ALL THE gifts which science has brought to the farmer the newest and in many ways the most spectacular is the application of atomic energy to the peaceful uses of agriculture. It heralds the dawn of a new era in agriculture. Nor is it merely tomorrow's dream. It is here now, available not only to America's farmers but to farmers all over the world.

Already, radio-active tracers in plant nutrients can be followed, as they course through the plant, showing exactly how it is nourished. Thus scientists can watch the effect of various nutrients, can experiment with various forms of feeding, detect disease, watch the action of growth regulators, weed-destroyers and other chemicals within the plant. They can use radiation to change the gene-structure of plants, producing mutations from which are developed new varieties

—doing in a few minutes what otherwise might have taken centuries to achieve. Rust-resistant cereal grains and stiff-stalked wheat are examples of successful mutants already developed, of which perhaps the most widely-known is the NC 4x groundnut, superior to any previously known variety and already in wide commercial use.

Radio-isotopes are widely used in treating animal disease. Radio-tracers permit studies of poultry metabolism, with a resultant increase in egg production and fertility. They reveal how cattle can die of vitamin B—12 deficiency on apparently fertile pasture. They show the importance of sulphur to sheep in the production of wool.

Atomic energy is already widely applied in the field of entomology. Tracers study the life cycle and migratory habits of many insect pests—studies which enable farmers to combat such enemies as the mosquito, cockroach, screw-worm and fly. Not long ago annual screw-worm damage in the United States amounted to Rs. 9.5 crores. Today, through the use of radiation to produce sterilization, entire populations of this pest have been wiped out. India's ancient scourage, the oriental fruit fly, is also being routed by radiation.

Atomic energy's uses are innumerable. They include the seeding of clouds to produce rainfall when monsoons fail, and to measure moisture in soil. Even the food man eats may be saved from spoilage by irradiation, remaining fresh long after untreated foods are inedible. By means of this technique, new items of diet long denied to most people because of the lack of preservation facilities may become available.

WAREHOUSING—AN ANSWER TO WASTE

(Continued from page 5)

possession of his goods. The rate of interest charged by the bank on such loans is much lower than at present charged on hypothecation of goods. The producer and the trader can use this loan for carrying on trade or agricultural operations and can also sell the produce when the market price is favourable by simply transferring the receipt to the buyer. Warehousing thus slashes waste by reducing the number of times the produce has to be handled in the market, cuts transhipment costs and provides safety through insurance against fire, theft, floods, etc. Workable grade standards are being evolved in respect of commodities for storing in the warehouses. When these grades become popular in the country, they should not only assume higher importance to the producer but also make trading smoother as there would then be no need to check the commodities physically or conduct trade through samples. Mere indication of the grade would be enough for the purchaser to know the quality eliminating the labour involved in physical checking of the goods as well as the risks involved in trading through samples.

The 19 warehouses which are already functioning under the Central Corporation, are located in the following States: Andhra Pradesh 4, Bombay 3, Kerala 2, Madhya Pradesh 1; Madras 1; Mysore 2; Orissa 1; Punjab 1; Rajasthan 2; Uttar Pradesh 1; and West Bengal 1.

The State Corporations which started their activities in 11 out of the 13 States only this year, have been able to provide storage accommodation for about 15 lakh bags (about six lakh maunds) in the first six months. Assam and Kerala are yet to open their centres. It is expected that before the end of the current financial year, these States will have their own warehouses.

A PLAN FOR KITCHEN GARDEN

S. L. Katyal and V. S. Motial

PRACTICE OF growing vegetables and some fruits in the backyard of houses is becoming very popular these days. Any one with a little space of land in his house feels interested in growing these useful crops, partly as a hobby and partly to meet the needs of his family.

Growing of vegetables and fruits in the kitchen garden is an art which can only be learnt through practice. It is, therefore, advisable that, if you want to take up this work seriously, you grow vegetables and fruits with your own hands in the backyard rather than depending upon other people.

Planning

Once you have made up your mind to have your own kitchen garden, it is suggested that you first prepare the plan of the area available in your backyard for this purpose. Planning is essential before taking up this enterprise in order to meet the needs of your family. An area between 1/4th to 1/6th acre will suitably cater to the needs of a family of 5—6 persons. It is necessary to make best use of the available land and prepare a comprehensive plan.

The first principle behind the kitchen gardening is intensive cultivation. This can be done by supplying liberal doses of manures and fertilizers and growing of vegetables throughout the year.

The primary requisite will be to level the land and dig it up to a depth of 1½ to 2 feet. Since the cultivation has to be intensive, a regular supply of water is absolutely necessary for raising a kitchen garden.

The layout of the plots should be such that they are easily accessible. The perennial crops like *Parwal* etc., should be planted on one side of the plot, so that they do not interfere with the cultural operations of other vegetables and fruit crops. The fruit plants should be grown on the border so that neither they occupy much space, nor they overshadow the vegetable plots. It is recommended that fruit plants of short duration only be planted in a kitchen garden. The rotation of crops should be so planned that the ground is fully occupied throughout the year. One very essential part of the garden will be a nursery plot and it should be properly manured whenever seeds are sown in this plot. Manure pit should also be provided in the plan. The dry leaves, rubbish and other refuse of the house should be thrown in this pit. The manure from the pit can be used after 3 or 4 months' period.

Selection of Vegetables

While selecting vegetables for growing, it is necessary to see that more return of the edible material is given to you, as compared to the area occupied by them. Cabbage, tomato, lettuce, spinach, carrot etc., will fulfil the requirements. Another important point is to see the quality of the varieties selected for sowing. Seeds from reputed nurseries should be obtained for your kitchen garden.

For getting vegetables throughout the year, successive sowings of the same crop should be done. For this purpose, varieties with different dates of maturity should be selected.

Seeds should be sown in nursery beds and the seedlings transplanted. It is necessary to transplant only healthy seedlings from the nursery beds. Short season and quick growing crops should be planted between the rows of longer season crops, *e.g.*, lettuce, radish. carrot etc., may be sown between the rows of cabbage and cauliflower. The vine crops should be planted near the wall so that they can be trained on the same. Crops like tomato should be staked.

Manure

Since cultivation in a kitchen garden is to be very intensive, a due consideration to the soil condition is called for. The soil should be frequently manured and maintained in a good condition. A doze of 20 seers of well-rotted farmyard manure *plus* 1½ seers castor cake, *plus* 5 oz., ammonium sulphate per 10 sq. ft. of plot is considered

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KEEP FIT

J. C. Srivastava,

Junior Associate (Extension) Planning Research & Action Institute, Lucknow

By remodelling the physical and recreational activities of the rural youth, consistent with the available local conditions and by organizing them frequently, their club life could be enriched and strengthened. With this end in view, the Planning Research and Action Institute, Lucknow is now engaged in conducting a series of trials to evolve the best method for inducing the youth to develop their agility, alacrity and the general standard of health through recreational activities.

These experiments envisage developing the four basic characteristics of (*i*) steady physique, (*ii*) organic fitness, (*iii*) Motor fitness and (*iv*) body protection, of the rural youth. To achieve these objectives, the experiments suggest to the Youth Organisers to :--

1. Inculcate the habit amongst the club members to adopt proper postures while sitting, standing and walking etc.

2. Make the members conversant with the various commands of parade like "attention", "stand at-ease" etc.

3. Teach them how to march to the tune of a marching song and shout slogans.

4. Help them practice the proper "get together", "mass-drill", "mass-prayer", physical exercises like Surya Namaskar, Asans etc.

5. Develop team-spirit, agility and the capacity to plan through games like Volley ball, Dodge ball, Foot ball and indigenous games which require no equipment and are prevalent in the area. Organizers may introduce such new games like Kangaroo-relay, Squirrels in the nest, Do this—Do that, Hit and Score, Human burden relay, Arithmetic race etc.

6. Induce members to take to Athletics—an item which develops the physique, organic and motor fitness of the individual. It needs introduction into the programme of activities of the youth clubs. Events like 100 yds. (or metres) dash, High Jump, Broad Jump, Shot Put, do not involve much cost and can be practised by the members without any difficulty. Ground preparation and the general rules of the two events of Broad Jump and Shot Put are given below as a ready guidance.

Broad Jump: A pit 9 feet wide and 29½ feet long and one foot deep be dug at the end of a runway of about 100 feet long. It should be filled in with sand. A take-off board, preferably of wood, 5½" wide has to be fixed in the runway at a distance of 3½ ft. from the nearest end of the pit. If the board is not available, lime dust may be used in preparing the board which must be in level with the ground. Each member may be given three chances to jump from the take-off board and the distance covered in his best jump may be recorded.

Shot put: To start with, an iron ball of 12 lbs. weight should be used. A circle of diameter 7 feet be drawn and a sector marked, within which the "Ball" must fall. While throwing the ball no part of the body should touch the ground outside the circle until the ball has fallen to the ground. After the ball has been released, the exit should be made from the half of the circle. Out of three chances given to each participant the distance covered by the best throw of each may be recorded. The distance should be measured from the centre of the circle to the nearest edge of the mark by the ball. The distance should be decreased by 3½ feet and the resultant will be the distance covered by each throw.

While holding competitions in these events between two or more clubs decision of positions may be ascertained by calculating the average of the score of all the participating members in a team. Though, individual championship may be recognised, stress should be laid on larger participation and team-score.

7. *Agility Work*: Efforts should be made to popularise items like hand-spring,

cart-wheel, hand stand, Asanas etc. which develop poise, stamina, physique, agility of the individual and goes a long way to strengthen his respiratory system and thus the general health.

8. Wrestling, club swinging, mace swinging, weight lifting, 'Gad-pheri', etc. where individual prowess counts much have to be started.

9. Swimming is a must for all youth club members, where facilities exist. While laying stress on it, it should be seen that members, specially the beginners practice swimming in clean and controlled water.

10. Planning Research & Action Institute's experiments are aiming to motivate the rural youth club members to grow according to prescribed physical standards as given below :--

Standard of Physical fitness

SUBJECT	AGE-GROUP 12—15	AGE-GROUP 16—29
1. 100 yards race	15 seconds	12 seconds
2. Long-jump	$12^1/_2$ feet	17 feet
3. Cricket ball throw	120 feet	150 feet
4. Shot put (12 lb.)	—	30 feet
5. Agility and balance	Standing on hands with a support (half minute)	3 cart wheels
6. Surya Namaskar	6 rounds	10 rounds.

The above list is by no means exhaustive and may be modified to suit local conditions. It is neither the intention that all the activities stated above may be started all at once. These may be adopted gradually keeping in view the avidity and interest of the club members and the facilities available.

THE THREE ENEMIES

INSECT PESTS, rats and moisture are the three main causes leading to damage of foodgrains during storage. It is estimated that more than 70,000,000 maunds of foodgrains are lost per year—a quantity sufficient to feed the entire population of the country for about a fortnight. Dampness causes a rise in temperature in the godowns and heats up the stored grain, causing it to become mouldy. Insect development and microbial activity is accelerated by the moisture content. Certain types of fungoid and bacterial activity produce toxic results in the grain, rendering it unfit for human or animal consumption. The damage is thus both qualitative and quantitative.

Proper insulation of the godown structures and ventilation is the main precaution against damage by moisture. The structures should be leak proof, and during the rainy season they should be frequently inspected. Any leak detected should be attended to promptly. Taurpaulin or Polythene sheets of 200 gauge should be kept handy for protecting the grain if an emergency arises in the form of unexpected leakage in the roofs.

Provision of "Dunnage"—*i.e.* material which insulates the grain against seepage of moisture from the side of the floor—is another important precaution. For bagged grain the dunnage recommended is either straw, bamboo matting, paddy husks, layers of sand or layers of bricks. For bulk storage grain-husk forms a good dunnage. More satisfactory, but less economical and often not locally available is a "dunnage" consisting of Polythene sheets, wooden grills, wooden batten or crates. Free aeration should be allowed on dry and sunny days. During periods of rain or excessive humidity, the doors and ventilators should be kept closed.

Whenever heating is suspected, stacks of bagged grain should be broken open immediately and bulk stocks should be aerated suitably. Moist grain should be disposed of as early as possible.

Damage by Insects

A number of insects belonging to two main groups—moths and beetles—cause damage to foodgrains in storage. Insect damage could be minimised by various preventive measures. The common belief that insects generate themselves within a grain-mass is wrong. Unless

they are introduced into the mass in some form like eggs or larvae, the adult pest cannot appear and the infestation is within human control.

Preventive Measures

Cleanliness and sanitation inside the godown should be secured by white-washing at least once a year. Empty godowns should be disinfested with BHC smoke generators or BHC dust before storing grain. All cracks and crevices must be plastered up properly. Bagged grain should be placed in proper sacks and given a uniform protective layer of 5 per cent BHC dust. These are preventive measures adopted when any infestation is noticed. Disinfestation of grainstores by 'Gammexane' smoke has been found the most scientific measure to adopt in the case of bagged grain.

Stocks held in bulk, as well as bagged grain, may be saved from infestation which has already developed by fumigation with fumigants recommended by the Union Food Department, such as Methyl Bromide, Ethylene Dibromide and Ethylene dichloride carbon tetra chloride mixture.

Since the fumes are poisonous many hazards are associated with the process, and precautions have to be taken by the operators to equip themeselves with gas-masks and carry out the fumigation under expert supervision. Laymen who have not received proper training in handling of fumigants should not attempt to use them.

Damage by Rodents

Enormous loss of foodgrains in storage is caused by rats. A rat of average size can eat away 27 kilogrammes of grain in a year. Like insects rats multiply in a prolific manner. In favourable conditions, one pair could give rise to 800 rats in a year.

Constructing rat-proof stores with cement, concrete or stone flooring is the safest protection against these pests. If the floor and base of the wall are kutcha, complete rat-proofing is not possible though entry of rats could be minimised by various devices. Breeding rats inside godowns can be kept down if they are not allowed access to water. Rats gnaw wooden doors and these should be protected at the bottom with tinplates and designed to fit closely.

Where rats have gained access to stores, their population can be reduced by trapping, poison baiting and cynogassing of rat-holes.

Cynogassing of rat-holes is helpful in reducing the rat population; but this requires great care and supervision. No untrained person should try to use this method.

Facilities for training in Scientific methods of handling grain storages have been arranged by the Union Ministry of Food and Agriculture, at Hapur in Uttar Pradesh, where India's first Grain Elevator-*cum*-Godown has been put into commission recently under the U.S. Technical Cooperation Mission's aid programme.

A PLAN FOR KITCHEN GARDEN

(*Continued from page* 8)

to be a good one. In case of root crops, tubers, bulbs and cole crops, the rate of application should be increased by 30—40%. It is advisable if the space permits to sow soil improving crops like cowpeas, *moong*, peas etc., to keep the land in good condition.

Harvesting

Pick vegetables frequently when they are still tender. They should not be allowed to stay on the plant longer. It is better to harvest the vegetables in a systematic way, *e.g.* in case of radish, carrot, turnip, remove plants alternatively.

Insect, Pests and Diseases

It is essential that the insect, pests and diseases are checked properly in the Kitchen garden. Spraying the plants with 5% D.D.T. or gammexane occasionally to keep off ants and grass hoppers, will be helpful. Nicotine sulphate should be sprayed against aphids etc. For control of rats and rodents, use poison baits prepared with zinc phosphate is recommended. The garden should be kept clean of weeds, as these harbour insect pests. The diseased plants should be uprooted and destroyed immediately after they are noticed.

SCIENCE NEWSLETTER

ARGEMONE is a common weed which grows in abundance even by the road side and banks of *nullahs*. Although its use as a manure was not completely unknown to farmers, its real value remained obscure. In fact, its sheer abundance was counted as a factor against it.

Experiments carried out in the laboratories of the National Botanic Gardens, Lucknow, led to the discovery of the excellent qualities of this weed in neutralising alkaline land. Since alkalinity renders the land unsuitable for cultivation, this discovery—it is being pursued further—will make it possible to reclaim millions of acres of *usar* land lying waste in different parts of the country.

The method of using Argemone as a manure is simple. It is collected in big quantities and allowed to dry up. It is then powdered and mixed with irrigation water.

Working on their experimental farm at Banthra, near Lucknow, a project team from the National Botanic Gardens has been successful in the actual reclamation of nearly 650 acres of alkaline land by using Argemone as the chief chemical agent. As a result, the yield from this land has been exceptionally good—nearly 15 maunds of paddy per acre, which compares very favourably with the State average of 10 maunds per acre.

The Banthra experimental farm has grown into its present size and eminence from very modest beginnings. In 1956, a 160-acre piece of what was then a virtual wasteland was placed at the disposal of the National Botanic Gardens by the U.P. Government. The Director of the National Botanic Gardens, Professor K. N. Kaul, who combines his training as a botanist with an almost uncanny feeling for soil, was conscious of the challenge this land offered and was determined to make it yield something more than mere stunted grass which grows there in rainy season. Like a missionary out to reform a particularly unregenerate sinner, he set about patiently to placate the land, soften it and slowly bring it back to health.

He was lucky to collect and inspire an enthusiastic band of workers, who were willing to exchange the test-tube literally for the shovel. The first step was to conserve water and stop further erosion by digging embankments and trenches and regulating drainage. Next step was to find an organic manure which could reduce alkalinity and then to cover the earth with grass. This spade work was enough to bring the land under some kind of control and render it pliable. The rest was left to the magic of Argemone.

The work at Banthra is not over yet. In the laboratories, experiments are still continuing to find out the best methods of utilising Argemone. Besides, at Banthra, the project has been extended to cover not only actual reclamation operations but also several new experiments in rural organisation and economy.

* * *

Low-Cost Windmill

A low-cost windmill suitable for lifting water for small-scale irrigation purposes and also for domestic supply in rural areas has been designed at the National Aeronautical Laboratory, Bangalore. All the materials used in its construction are available indigenously.

In constructing this windmill the wind regimes prevailing in most parts of India and the need for high overall efficiency in light winds have been kept in view. The design of the windmill is simple and it can be built and repaired easily. The cost of a complete windmill has been estimated at Rs. 2,500. It is proposed to manufacture 200 units of the windmill in the first instance and try them in different parts of the country.

* * *

PROGRAMME PATTERN

All India Radio launched a weekly new feature, Radio Rural Forum in its rural broadcast in all the States in the Community Development Blocks to increase knowledge and information of the rural people.

Eight hundred and forty Radio Rural Forums, each consisting of 15 to 20 villages, have been formed in Community Development Blocks in various States under the scheme. Special programmes including talks, plays and features will be broadcast every Tuesday for half-an-hour to expand the horizon of the knowledge of the villagers, to make them better citizens and to enable them to express themselves freely with restraint and politeness on their day-to-day problems. Members will listen to the broadcasts through community receivers. The results of the discussions at the Forum and queries raised during the discussions, will be recorded and communicated to the department concerned. Subsequent broadcasts will answer the points raised during the discussion.

The Forum broadcasts are intended for "listening-*cum*-discussion-*cum*-action" and "it is a two-way traffic". The broadcasts are intended to give a new type of adult education.

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The Punjab Government decided to give top priority to the development work in villages. To keep a constant watch on the progress of work, the Minister in charge, the Development Commissioner and other officers would undertake extensive tours and pay surprise visits to villages and discuss local problems on the spot. For proper evaluation of the work, progress report would be called from B.D.Os. every month instead of every 3 months as used to be done previously. These reports would be tabulated and placed before the Ministry by the 10th of every month.

People's Courts

Shri A. K. Sen, Union Minister, recently disclosed in the Rajya Sabha that the Government are considering various proposals to improve the working and efficiency of the Panchayats. One of the proposals is to model the panchayats on the pattern of people's courts in the U.S.S.R. In order that the Panchayats might work satisfactorily it is desirable to have at least one member with judicial training, not necessarily a law graduate. The other members could function like the jury. It is further proposed to make the Panchayat decisions final and to limit the functioning of the existing courts only to big cases. It is essential to develop the Panchayats on such a pattern in order that the numerous petty complaints arising out of the growing industrialisation of the country might be dealt with effectively and expeditiously.

Panchayat Survey

The Government of India have decided to undertake a sample survey early in 1960 to ascertain how the village panchayats are actually functioning and assess generally the public response to the panchayat movement in the various States.

The survey will, in particular, obtain details about the size and coverage of panchayats, the composition of their membership, their activities, income and expenditure and functional sub-committees and associate village organisations. The survey will help to measure the progress achieved in various aspects of the panchayat movement.

There are roughly, 1.75 lakh village panchayats in the country. The proposed survey will be confined only to about 10,000 sample panchayats spread over the whole country. Collection of relevant particulars about the sample panchayats will be entrusted to the village level worker wherever the sample panchayat is located in a Community Development block. If a sample panchayat is, however, located in the non-C.D. area, the field work will be entrusted either to the regular staff of the Panchayat Department or to a village level worker of the C.D. block situated in the neighbourhood. Each village level worker (enumerated) will not be generally required to visit more than one sample panchayat.

* * * *

Panchayat Coverage

THE ANDHRA PRADESH, which has been a total of 26,000 revenue villages are 15,000 panchayats in the State, 10,000 in the Andhra region and 5,000 in Telegana. The finances of panchayats were previously poor, but now revenues have considerably improved and they are now in a position to take up programmes for provision of amenities like water supply, roads, bridges and culverts. The total revenue of panchayats in the 11 districts of Andhra alone amounts to rupees three crores annually. This fiscal year Panchayats in Andhra would be executing works costing Rs. 40 lakhs, for which they would get half grant from Government. These works are in addition to what they used to do previously.

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Rajasthan Coops.

THE NUMBER of cooperatives in Rajasthan has increased to 12,360 and their membership to 5,85,000. Their combined share capital has increased to Rs. 3 crores and working capital to over Rs. 17 crores. The Industrial Cooperatives produced goods worth Rs. 96.17 lakhs and sold worth Rs. 95.7 lakhs. Loans amounting to Rs. 9.6 crores were distributed and the total sales from cooperative societies amounted to Rs. 2 crores.

The target of organising 1,780 service cooperatives in the State has nearly been achieved and the process of vitalising many other agricultural societies is in progress.

* * * *

Bombay Leads

BOMBAY LEADS the other States in India in the field of the cooperative movement. The total working capital of the cooperatives in Bombay State on June 30, last year, amounted to nearly one-third (Rs. 211 crores) of the total working capital of the cooperative societies in the entire country (Rs. 650 crores).

At present, 25,000 rural cooperatives are serving 48,000 of the 54,000 villages in the State. The issue of cooperative credit has crossed the Rs. 50-crore. Long-term cooperative credit has also exceeded the Second Plan target of Rs. 7.5 crores during the first three years of the Plan. This comes to nearly 50 and 30 per cent respectively of the total performance in the whole of India.

About 85 per cent of the total number of villages and 35 per cent of the rural population in the State are covered by cooperatives. A programme to cover all villages by service cooperatives by the end of 1960-61 has been launched by the Government. The end of the Second Plan may see at least 60 per cent of the population being covered by cooperatives.

* * * *

N. Rly. Cooperatives

EVERY THIRD member of the staff on the payroll of the Northern Railway is a member of one of the four cooperative credit societies functioning on the Railway. These societies have a total membership of 50,000 and paid up capital of Rs. 26 lakhs. Their working capital exceeds Rs. 1.5 crores.

The authorities provide a number of concessions to consumer cooperatives. They include grant of subsidy for establishment and administrative charges, cheap accommodation, supply of water and electricity at concessional rates, recovery of dues through salary bills, issue of special passes to members of the managing committees to attend meetings of the societies, and social casual leave.

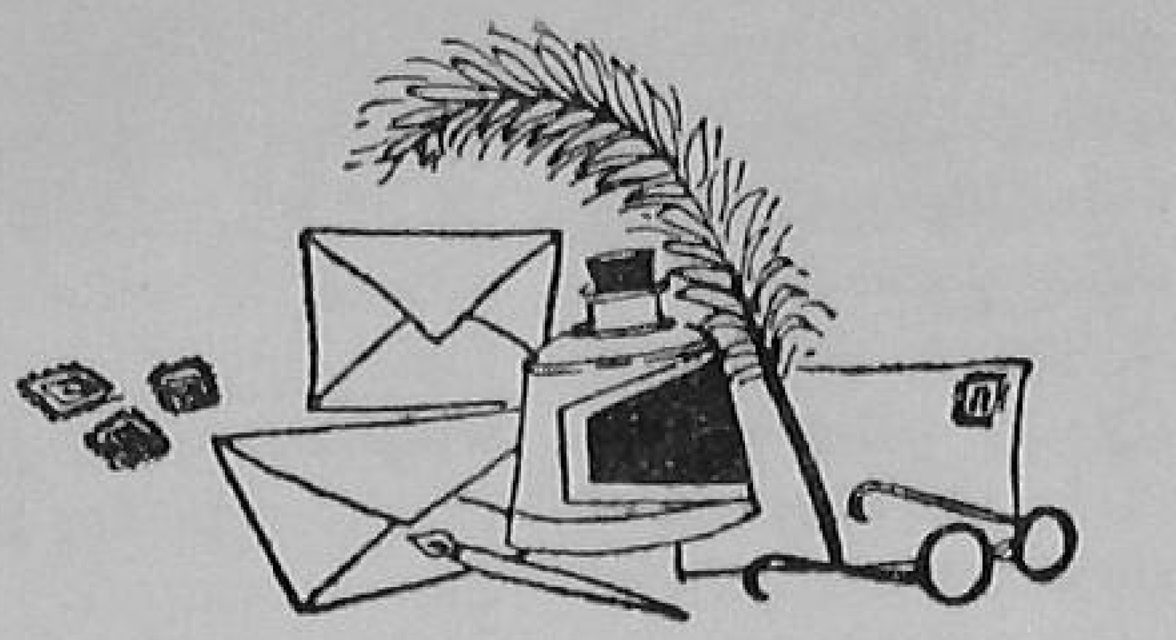
There are 22 consumer cooperative stores on the Railway. Their turnover exceeded Rs. 13 lakhs during the last year. The credit societies advance loans to the members and the interest varies from 4½ to 7 per cent. At the close of the last year, the outstanding balance due from members amounted to Rs. 1.38 crores.

The societies also accept deposits from the members and help in small savings. The total deposits exceed Rs. 70 lakhs.

Puddling Machine

THE CENTRAL Rice Research Institute, Cuttack, has developed a very cheap and useful machine for puddling rice fields with standing water. It has several rotating blades or shares. It cuts the soil and churns it, and can be easily drawn by a pair of bullocks.

The machine has to be worked only once or twice after filling the field with water.



OUR POST BOX

(*Readers' questions are answered in these columns by* **VIDUR**)

Question : What is the impact of the C.D. Programme on the general outlook and attitude of the Indian villager ?

Answer : It is very difficult to estimate exactly the impact of a nation-wide programme of this nature. During the short period of its functioning, many instances have come to light which go to show that the villagers who have come under this programme react differently. They have now come to believe that the programme is as much their responsibility as that of the State. The spirit of self-reliance is bound to grow as the Panchayats and Cooperatives come into their own and strengthened as a result of the scheme of democratic decentralisation. The villagers no longer cherish the same feelings of awe and fear as they used to do in the past in the presence of Government offi[illegible] they now look u[illegible] guides and helpers. As a result of the programme, an urge for improved amenities of life has also grown up perceptibly.

Question : How far is the C.D. Programme an essay in human relationship ?

Answer : The main objective of the Community Development programme is to create in the people an urge for a better and fuller life and to equip them to achieve the same by relying mainly on their innate strength, individully as well as cooperatively. The programme seeks to make the people essentially builders of themselves, the community and the nation. The task is indeed stupendous both quantitatively as well as qualitatively. Since all improvements are sought to be brought about by the extension method—that is, through persuasion and training—the progress is bound to be slow and in accordance with its own laws of organic growth. Coming as they do from the same class as the rest of the people, the Government servants cannot claim for themselves any inherent superiority over others. We are today confronted with the difficult task of achieving coordination between the officials and non-officials on the one hand and between the various departments engaged in the development work on the other.

Question : The resources of the Panchayats as at present are very limited. What measures are to be adopted to increase their revenue so that these could function more effectively ?

Answer : Several measures have been recommended in this connection. These have been accepted in varying degrees by States where the scheme of democratic decentralisation is being put into operation. These States have agreed to give a fair percentage of land revenue as a general-purpose grant to Panchayats. The Panchayats have also been invested with powers to levy taxes on certain specified items. They have been given ownership rights and control of management over community assets like common grazing lands, forests, quarries and fish-ponds etc. which are a rich source of recurring income. Wherever facilities exist, Panchayats have been allowed to maintain model farms on culturable lands with a view to augmenting their income still further.

Question : The working of the Cooperative Credit Societies in the past has been unsatisfactory. What steps are now being taken to make these more useful and effective ?

Answer : It is true that in the past there has been a mushroom growth of Credit Societies. Some of these never went beyond advancing some loans to the needy agriculturists who owned land; and so they did some good in safeguarding the petty peasant proprietors from the clutches

of grasping money-lenders. Their scope and purpose was much limited. It is now sought to convert gradually these credit societies into Service Cooperatives with a view to render more effective assistance to the villagers. These will arrange to supply the farmers' requirements such as fertilizers, improved seed, better implements and other commodities. Credit is being linked to marketing and arrangements are being made for advancing loans against the prospective crop even to the so-called "non-credit worthy" persons who do not own any land.

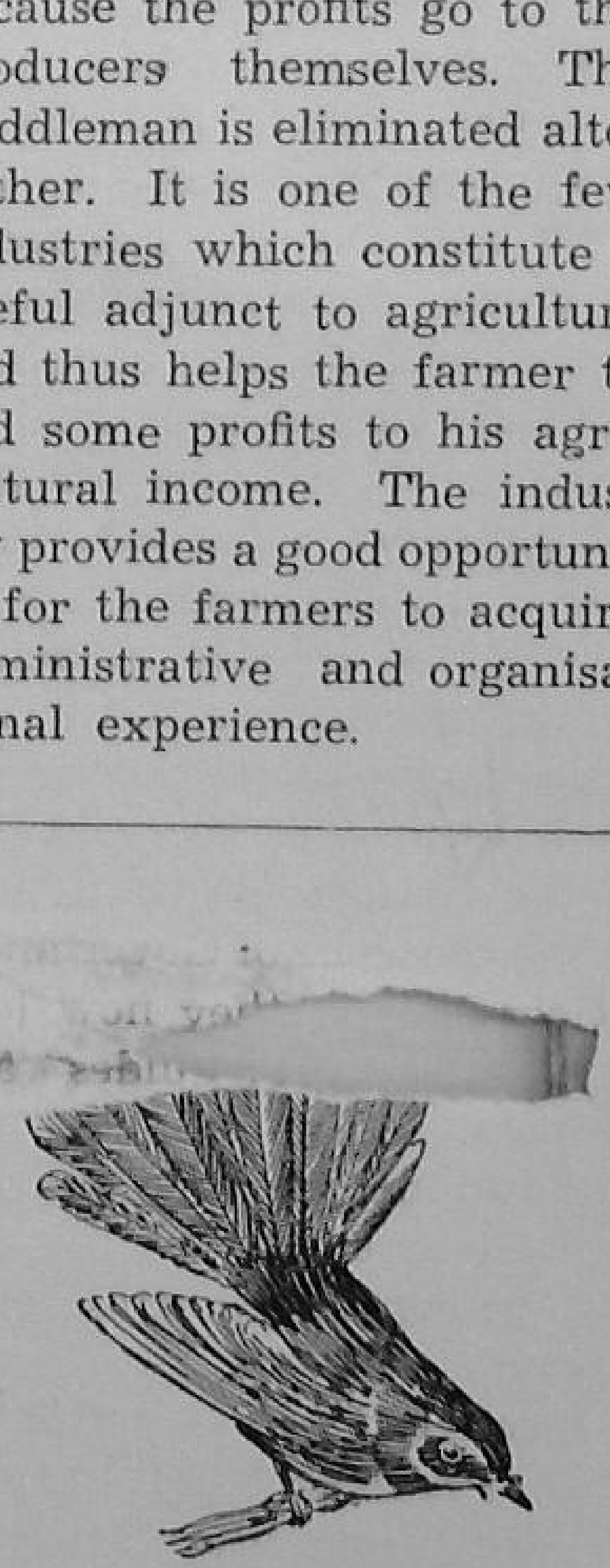
Question: It has been argued that the C.D. programme has done little to improve the lot of the poorer sections in our villages. What measures are being undertaken to rectify this situation?

Answer : While it has never been claimed that anything spectacular has been achieved in the economic condition of the poorer sections, it will be unjust to say that nothing has been done to help them. Apart from benefiting from the increased community facilities and services such as drinking water wells, hospitals, schools etc., they have found more employment as a result of improved practices in agriculture and a spurt in building activities in the Block areas. Some of them have also been helped by the small-scale and village industries for which technical and financial assistance has been given under the programme. These results are however limited in scope as well as intensity. In fact the problem is so long-standing and acute that it would have been a miracle to have solved it satisfactorily during this short period. In the absence of certain basic and institutional changes in the existing socio-economic pattern in the villages, the C.D. programme has only a limited role to play in the tremendous task of the uplift of the masses. Too little land and too many people has been the bane of rural economy. The problems of underemployment or unemployment are sought to be tackled by laying greater emphasis on Cooperative Services and cooperative farming and developing self-sustaining small-scale industries based on improved techniques. Necessary changes in the set-up of cooperatives and Panchayats are being brought about to facilitate greater participation by the common man. The rules and regulations governing the Cooperatives are being simplified and streamlined so as to remove unnecessary impediments in the efficient and expeditious working of the societies. A major reform now sought to be brought about is the waiving of the condition of land surety against the loan advanced by a Cooperative society.

Question: What is the particular reason for the Government selecting the sugar industry to be organised on Cooperative lines?

Answer : It is the policy of the Government to encourage the cooperative pattern in all spheres of economic activities. But there are certain industries which by virtue of their intrinsic quality and wide scope for future expansion fare better than others in the cooperative sector. And sugar industry is one of these. At present there are 51 sugar factories with a working capital of about three milion of rupees and a membership of 1,23,000, working on cooperative lines in the country.

The area under sugar cane is steadily rising and a bright future lies ahead of sugar industry in India. This is due to the big increase in irrigation potentialities released by the various multipurpose projects. Cooperative sugar factories have proved so popular because the profits go to the producers themselves. The middleman is eliminated altogether. It is one of the few industries which constitute a useful adjunct to agriculture and thus helps the farmer to add some profits to his agricultural income. The industry provides a good opportunity for the farmers to acquire administrative and organisational experience.



SHEARING SEASON

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Plan(ned) Progress

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